

--41. The apparatus of claim 40 wherein the impeller comprises at least 3 blades.--

--42. The apparatus of claim 41 wherein the impeller has 4 blades.--

--43. The apparatus of claim 40 wherein a plurality of magnets is disposed within each blade.--

--44. The apparatus of claim 40 wherein a single magnet is disposed within each blade.--

--45. The apparatus of claim 40 wherein the blades are separated by channels extending from a first face to an opposing second face of the impeller.--

--46. The apparatus of claim 45 wherein the second face of the impeller includes a plurality of tapered surfaces forming the hydrodynamic bearing surface.--

--47. The apparatus of claim 40 wherein the apparatus further comprises: a shaft coupled to a center of a face of the impeller, the shaft axially aligned with the impeller axis of rotation.--

--48. A blood pump apparatus comprising:  
an impeller having a hydrodynamic bearing surface and a plurality of channels  
extending substantially radially from a center to a periphery of the impeller; and  
a plurality of magnets, each magnet disposed within the impeller between a pair  
of channels, wherein an axis of magnetization of the magnets is substantially parallel  
to an impeller axis of rotation.--

--49. The apparatus of claim 48 wherein the impeller comprises at least 3  
channels.--

--50. The apparatus of claim 49 wherein the impeller comprises 4 channels.--

--51. The apparatus of claim 48 wherein the channels extend from a first face  
to an opposing second face of the impeller.--

--52. The apparatus of claim 51 wherein the second face of the impeller  
includes a plurality of tapered surfaces forming the hydrodynamic bearing surface.--

--53. The apparatus of claim 48 wherein a plurality of magnets is disposed  
within each blade.--

--54. The apparatus of claim 48 wherein a single magnet is disposed within each blade.--

--55. The apparatus of claim 48 wherein the apparatus further comprises: a shaft coupled to a center of a face of the impeller, the shaft axially aligned with the impeller axis of rotation.--

--56. A blood pump apparatus, comprising:  
an impeller having a hydrodynamic bearing surface; and  
a first stator and a second stator, wherein the impeller is disposed axially between the first and second stators, wherein the impeller and stators form an axial flux gap motor.--

--57. The apparatus of claim 56 wherein the impeller further comprises a plurality of magnets, each magnet having a magnetic axis substantially parallel to an impeller axis of rotation.--

--58. The apparatus of claim 57 wherein the magnets are disposed within blades of the impeller.--

--59. The apparatus of claim 57 wherein the impeller comprises a plurality of channels extending from a center to a periphery of the impeller.--

--60. The apparatus of claim 59 having at least 3 channels.--

--61. The apparatus of claim 59 having 4 channels.--

--62. The apparatus of claim 58 wherein a plurality of magnets is disposed within each blade.--

--63. The apparatus of claim 58 wherein a single magnet is disposed within each blade.--

--64. A blood pump apparatus, comprising:  
a housing defining a volute, and  
an impeller, the impeller having a hydrodynamic bearing to provide axial support,  
the impeller having a magnetic bearing to provide radial support.--

--65. The apparatus of claim 64 wherein the impeller further comprises a plurality of magnets, each magnet having a magnetic axis substantially parallel to an impeller axis of rotation.--

--66. The apparatus of claim 65 wherein the magnets are disposed within blades of the impeller.--

--67. The apparatus of claim 65 wherein the impeller comprises a plurality of channels extending from a center to a periphery of the impeller.--

--68. The apparatus of claim 67 having at least 3 channels.--

--69. The apparatus of claim 67 having 4 channels.--

--70 The apparatus of claim 66 wherein a plurality of magnets is disposed within each blade.--

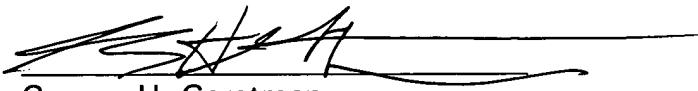
--71. The apparatus of claim 66 wherein a single magnet is disposed within each blade.--

REMARKS

Claim 1 has been cancelled and claims 40-71 are presented. Applicant encloses a *Patent Application Fee Determination Record* (form PTO/SB/06) and a check for \$147. The Commissioner is hereby authorized to credit any overpayment or charge any fee for additional claims to deposit account no. 07-1141.

Examination on the merits of this application is respectfully requested.

Respectfully submitted,



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